Do Not Remove

FEASIBILITY STUDY

US 1
From US 1A South of Franklinton
to US 1A North of Franklinton
Franklin County
R-2202

Prepared By
Planning and Research Branch
Division of Highways
N.C. Department of Transportation

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The subject project is included in the 1987-1995 Transportation Improvement Program for a feasibility study and/or right-of-way protection. This report provides a brief initial analysis of possible improvements. The project is not currently funded.

I. GENERAL DESCRIPTION

The proposed project consists of widening US 1 from the intersection of US 1A south of Franklinton to the intersection of US 1A north of Franklinton a distance of approximately 3.0 miles. Improving of the of the existing two lane highway to a four lane divided facility within the same corridor appears to be feasible and desirable.

II. PURPOSE OF PROJECT

US 1 is classified as a rural principal arterial on the North Carolina Functional Classification System and is also classified as a Federal Aid Primary route. It functions as a major connecting route between the Raleigh area and I-85 near Henderson. The current traffic volumes range from 4400 vehicles per day (vpd) north of Franklinton to 5500 vpd near the intersection of NC 56 to 6300 vpd south of Franklinton. These volumes are expected to increase to a range of 7400 vpd to 10600 vpd in 2007. An analysis of the subject section indicates that it is currently operating at Level of Service "D". Based on traffic projections the subject section will be operating at Level of Service "E" at the end of the 20 year planning period if no improvements are made. The provision of the two additional lanes will help to provide a higher level of service in the future. An analysis indicates that the proposed improvements will result in a facility which will operate at Level of Service "B".

Reports in the news media and from other sources indicate that there is strong public support for four laning US 1. Its importance as a connector route from the Raleigh area to outlying communities and to I-85 also indicate that widening to four lanes is desirable.

Existing pavement width is 24' throughout the project length except for the short portion of the project just north of the intersection of US 1, US 1A and SR 1204 which is 22' wide. Horizontal and vertical alignment are generally good and the terrain is rolling. Existing right-of-way is 200' except for the section just north of the same intersection

which has 100' to 150' of right-of-way.

The speed limit along the project is 55 mph. There are no traffic signals and all intersections are at-grade except for the intersection with NC 56 which has an interchange. All intersections will remain as they are now. Development along the project is primarily rural residential and commercial uses.

A strip accident analysis of the studied section of US 1 was provided by the Traffic Engineering Branch. This study covered the period from January 1, 1984 through March 31, 1987. The following table gives a comparison between the accident rates for US 1 and the statewide accident rates for US primary highways:

Accident Rates

	US 1	Statewide Average US Primary Routes (1986)
Total Accidents (Accidents per million vehicle miles)	2.12	1.49
Fatal Accidents (Accidents per 100 million vehicle miles)	3.33	2.7
Non-Fatal Injury Rate (Accidents per 100mvm)	99.97	69.9
Night Accident Rate (Accidents per 100 mvm)	103.30	45.4
Wet Accident Rate (Accidents per 100 mvm)	49.98	32.9

A total of 66 accidents occurred on this section of US 1 during the stated time period. This total included 1 fatal accident. The intersection of SR 1127 was the location of the highest number of accidents with a total of 12. Two other locations each had a total of 5 and one other location had 4. The rest of the accidents were scattered along the project length. The largest percentage (22.7%) was angle collisions and the second largest was rear end collisions (19.7%). The reason for the higher number of accidents at the intersection of SR 1127 is not readily apparent as it has adequate sight distance and is not skewed. The reasons for the higher accident rates than statewide averages are not clear from a study of the accident analysis but widening of the existing highway to a four lane divided facility should help to reduce

the accident rate along this section of US 1.

III. POSSIBLE IMPROVEMENTS

Three alternative types of improvements were considered during the course of this study.

The most desirable improvement is widening the existing two lane highway to a four lane divided section with a 32' grass median. This will be consistent with the adjoining section of US 1 south of the project. The proposed cross-section will consist of two 24' pavements separated by a 32' grass median and 10' useable shoulder widths with 2' paved. Full control of access will be maintained in order to remain consistent with the adjoining four lane divided section of US 1 to the south of the project. Beginning at the south end of the project, at the point where the existing 4-lane divided section tapers to 2 lanes, a 4-lane divided facility should be constructed on new location west of the existing US 1. The existing US 1 from a point just north of the US 1A intersection at the south end of the project to the interchange with NC 56 will become a frontage road to control access along the east side of this segment of US 1. The interchange at NC 56 will be shifted to the west of its present location in order to use the existing US 1 as a frontage road. Two new bridges will be required. The existing bridge, which is 36 years old, will be removed. From just north of the NC 56 interchange to just south of the intersection with US 1A north of Franklinton the alignment will shift back to the east to utilize the existing 2 lanes of US 1 as the northbound lanes and 2 new lanes will be constructed to serve southbound traffic. Access to US 1 through this segment of the project will be provided by frontage roads.

Other recommended improvements include the realignment of the intersection of US 1A at the south end of the project to tie perpendicularly with US 1 north of the Cedar Creek crossing of US 1. The existing culvert under US 1 will have to be extended at each end. A channel change for Cedar Creek will eliminate the need for a culvert under US 1A. The intersection of US 1, US 1A and SR 1204 at the north end of the project should be relocated approximately 800' south of the present intersection to tie perpendicularly with US 1. The frontage roads which will provide access to US 1 in this area will be located from this intersection southward. US 1 through this area should have a minor alignment change to flatten the existing curve. Approximately 0.3 mile north of this intersection the proposed 4-lanes taper back into the existing 2 lane US 1.

An additional 50' of right-of-way will be required for the relocated segment of the project. An additional 15' of right-of-way will be needed on each side for the frontage roads at the north end of the project.

The estimated cost of the recommended improvements is $6,200,000 for construction and $3,080,000 for right-of-way. The construction cost includes the cost of new bridges at the NC 56 interchange and the cost of extending the Cedar Creek culvert. The estimated length of the bridges will be 128' and the width will be 38'.

The second alternative would widen the existing highway to a four lane divided section from the south end of the project to SR 1127 by constructing 2 additional lanes on the west side of the existing highway. These lanes would be separated by a 32' grass median in order to be consistent with the adjoining section to the south. This four lane section would taper to a five lane shoulder section near the intersection of SR 1127 and this five lane section would be constructed from this point to the northern terminus of the project. This would require construction of a new bridge at the interchange of US 1 and NC 56. This bridge would be 80' wide and 128' long. There would be no control of access with this alternative. No additional right-of-way would be required for this alternative except for the realignment of the intersections at each end of the project as described in the first alternative. The estimated cost of this alternative would include $5,000,000 for construction and $123,000 for right-of-way for the realignment of the intersections.

The third alternative would widen the existing highway to a five lane shoulder section for the entire length of the project. A new bridge 80' wide and 128' long would be required at the interchange with NC 56. The only right-of-way required would be for the realignment of the intersections at each end of the project as described in the first alternative. The estimated cost of the project would include $4,850,000 for construction and $123,000 for right-of-way.

V. POSSIBLE ENVIRONMENTAL IMPACTS

The most significant environmental impacts will be possible impacts on wetlands and the relocation of an estimated 5 homes and 5 businesses. A small amount of channel change will be required for Cedar Creek at the south end of the project.

VI. RECOMMENDATIONS

It is recommended that the alternative of a four lane divided facility for the entire length of the project be

selected for construction. It offers the advantages of full control of access and compatibility with the adjoining section to the south. It would offer safer travel and would be consistent with the need to four lane US 1 for the entire distance from Raleigh to I-85.

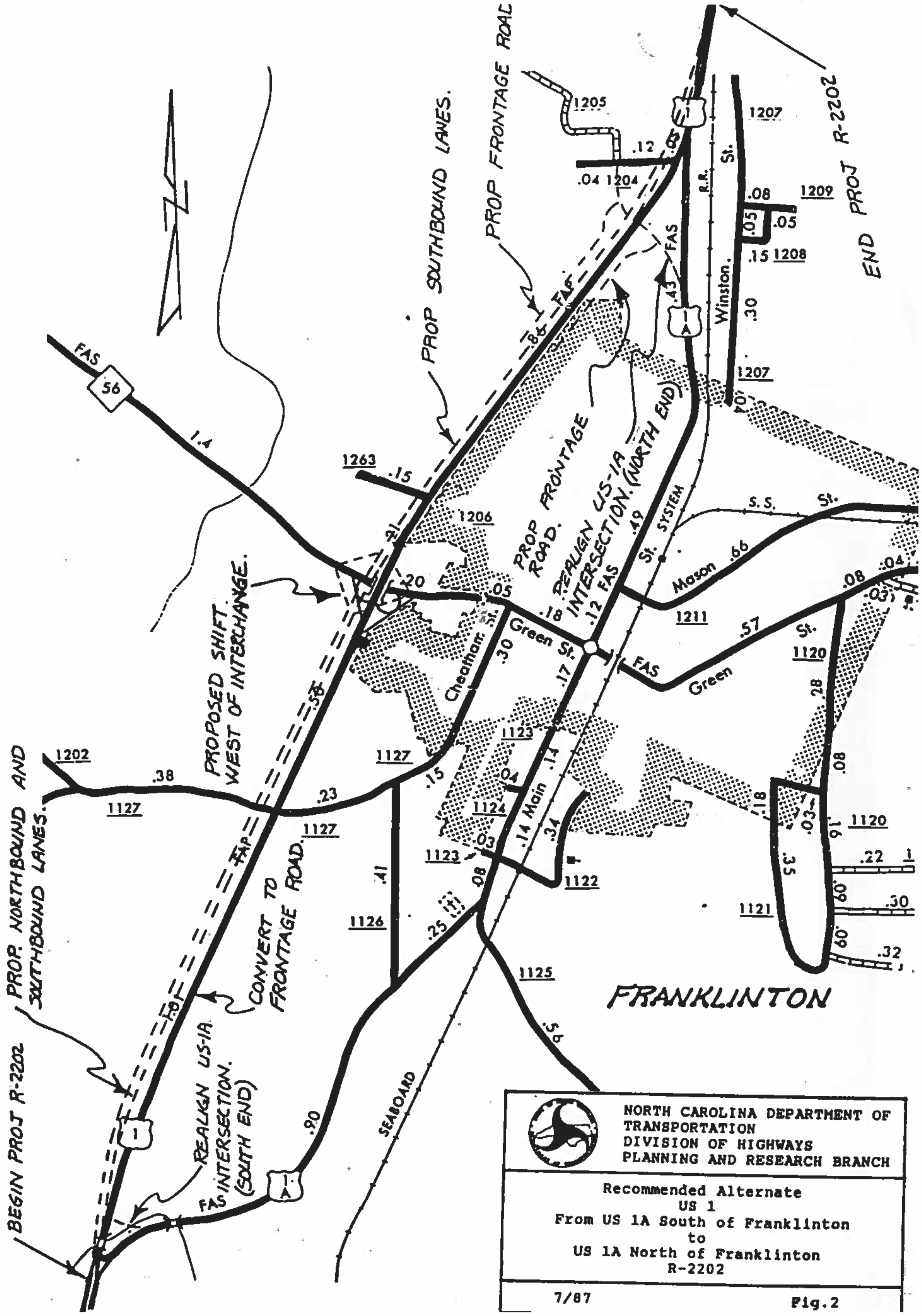
VI. SCOPE OF STUDY

Construction cost estimates were based on costs of comparable projects and were furnished by the Roadway Design Unit. Right-of-way estimates were furnished by the Right-of-Way Branch following a field review.

The proposed improvements were based on input from field investigation, coordination with the Roadway Design Unit and experience with planning for similar projects. The Division Engineer was contacted during the course of this study. He responded but had no suggestions to offer.

ASC/

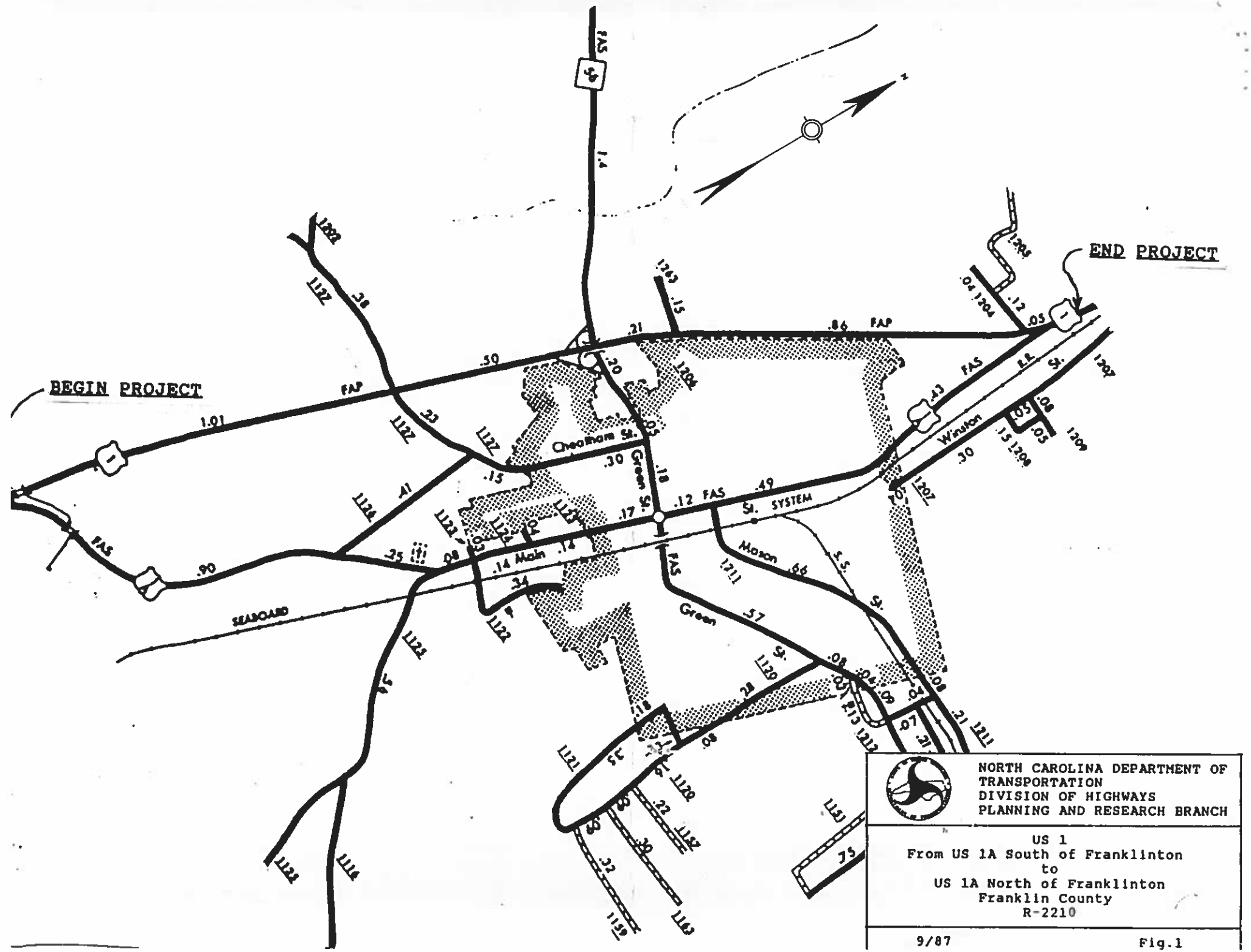
Attachment



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

Recommended Alternate
US 1
From US 1A South of Franklinton
to
US 1A North of Franklinton
R-2202

7/87 | Fig.2



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US 1
From US 1A South of Franklinton
to
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Franklin County
R-2210

9/87 Fig.1